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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MCLEOD, MARSHALL M

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/815,453	<b>Applicant(s)</b> GONZALEZ ET AL.	
	<b>Examiner</b> MARSHALL MCLEOD	<b>Art Unit</b> 2457	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 and 81-87 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 and 81-87 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/10/2008</u>  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1-26, and 81-87 are pending in this application. The examiner also withdraws the claim objections to claims 1-3.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-6, 8-10, 12-19, 21-23, 25-26, and 81-87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld et al. (Patent No US 5,828,835), hereinafter Isfeld, in view of Hagsand et al. (Patent No US 7,254,142 B2), hereinafter Hagsand and further in view of Deri et al. (Patent No US 5,943,150), hereinafter Deri.**

3. With respect to claim 1, Isfeld discloses a method of communicating between a plurality of processing nodes (Column 1, line 60), the method comprising: accepting the channel in the destination processing node (Column 3, lines 1-4); allocating a transmit buffer for the channel in the source processing node (Column 4, lines 29-35; i.e. messages to be transmitted on the connectionless communication link can be interpreted as allocating a transmit buffer for the channel); allocating a receive buffer for the channel in the destination processing node (Column

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4, lines 11-17); in a source processing element (Column 2, lines 63-67 continued through to Column 3, lines 1-4), writing data to the transmit buffer for the channel (Column 3, lines 40-45); in a source network interface (Column 12, lines 11-18), transmitting the data from the transmit buffer of the source processing node over the channel (Column 2, lines 40-45); in a destination network interface (Column 8, lines 50-52), receiving the data into a receive buffer for the channel in the destination processing node (Column 4, lines 11-17); and in a destination processing element, receiving the data from the receive buffer (Column 4, lines 11-17).

Isfeld does not disclose an array of processing nodes; generating a channel that has bandwidth requirement and is uni-directional from a source processing node to a destination processing node, the source processing node and destination processing node contained within the array of processor nodes, the channel generated based on a physical description of the array of processing nodes.

However, Hagsand discloses generating a channel that has bandwidth requirement (Column 3, lines 42-43).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings of Isfeld with the teachings of Hagsand in order to speed up or reduce the transfer of data by specifying that the system bandwidth meet certain requirements.

The combination of Isfeld and Hagsand does not disclose a channel that is uni-directional from a source processing node to a destination processing node, the source processing node and

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destination processing node contained within the array of processor nodes, the channel generated based on a physical description of the array of processing nodes.

However, Deri discloses a channel that is uni-directional from a source processing node to a destination processing node (Column 3, lines 2-9), the source processing node and destination processing node contained within the array of processor nodes, the channel generated based on a physical description of the array of processing nodes (Column 2, lines 67-68 and continued through to Column 3, lines 1-11).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the combined teachings of Isfeld and Hagsand with the teachings of Deri, in order to limit bandwidth usage by restricting the traffic that travels through each channel to one direction only.

4. With respect to claim 14, Isfeld discloses a source processing node (Column 37, Claim 1), allocate a transmit buffer for the channel, and write data to the transmit buffer for the channel (Column 12, lines 26-48), and a source network interface (Column 12, lines 11-18), configured to transmit the data from the transmit buffer of the source processing node over the channel (Column 2, lines 40-45); and a destination processing node (Column 4, lines 11-17), a destination network interface (Column 8, lines 50-52), receiving the data into a receive buffer for the channel (Column 4, lines 11-17), and a destination processing element configured to accept

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the channel, allocate a receive buffer for the channel in the destination processing node, and receive the data from the receive buffer (Column 4, lines 11-17).

Isfeld does not disclose a source processing element configured to generate a channel that has bandwidth requirements and is uni-directional to a destination processing node; the channel generated based on one or more tasks associated with the destination processing node, the source processing node and destination processing node included within an array of processing nodes.

However, Hagsand discloses generating a channel that has bandwidth requirement (Column 3, lines 42-43).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings of Isfeld with the teachings of Hagsand in order to speed up or reduce the transfer of data by specifying that the system bandwidth meet certain requirements.

The combination of Isfeld and Hagsand does not disclose a channel that is uni-directional from a source processing node to a destination processing node, the channel generated based on one or more tasks associated with the destination processing node, the source processing node and destination processing node included within an array of processing nodes.

However, Deri discloses a channel that is uni-directional from a source processing node to a destination processing node (Column 3, lines 2-9), the channel generated based on one or more

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tasks associated with the destination processing node, the source processing node and destination processing node included within an array of processing nodes (Column 2, lines 67-68 and continued through to Column 3, lines 1-11).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the combined teachings of Isfeld and Hagsand with the teachings of Deri, in order to limit bandwidth usage by restricting the traffic that travels through each channel to one direction only.

5. With respect to claims 2 and 15, Isfeld discloses wherein the channel is associated with a first task executing on the source processing element and a second task executing on the destination processing element (Column 12, lines 49-57).

6. With respect to claims 3 and 16, Isfeld discloses wherein the channel is associated with a first port in the source processing element and a second port in the destination processing element (Column 41; Claim 41, lines 21-32).

7. With respect to claims 4 and 17, Isfeld discloses the size of buffers (Column 20, lines 12-18). Isfeld does not disclose wherein the channel has a maximum number. However, Hagsand discloses wherein the channel has a maximum number (Column 4, lines 17-24).

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8. With respect to claims 5 and 18, Isfeld does not disclose reserving intermediate resources for the channel based on the bandwidth requirements. However, Hagsand discloses reserving intermediate resources for the channel based on the bandwidth requirements (Column 4, lines 25-31).

9. With respect to claims 6 and 19, Isfeld does not disclose guaranteeing bandwidth based on the bandwidth 5 requirements using time division multiplexing. However, Hagsand discloses guaranteeing bandwidth based on the bandwidth 5 requirements using time division multiplexing (Column 2, lines 38-44).

10. With respect to claims 8 and 21, Isfeld discloses polling a plurality of channels to check if data is received into the receive buffer for the channel (Column 12, lines 44-50; i.e. ...hardware keeps state information which can be interpreted that the hardware checks if the channel has received data i.e. polling).

11. With respect to claims 9 and 22, Isfeld discloses freeing the transmit buffer (Column 34, lines 52-54).

12. With respect to claims 10 and 23, Isfeld discloses freeing the receive buffer (Column 38; Claim 11, line 36).



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13. With respect to claims 12 and 25, Isfeld discloses receiving a pointer for the data in the receive buffer into the destination processing element and wherein receiving the data from the receive buffer is based on the pointer (Column 12, lines 40-48).

14. With respect to claims 13 and 26, Isfeld discloses wherein a time for a receive call in the destination processing element does not depend upon a size of the data (Column 2, line 40-50).

15. With respect to claim 81, neither Isfeld nor Hagsand discloses receiving one or more tasks, wherein the step of generating a channel is performed in response to receiving the one or more tasks.

However, Deri discloses receiving one or more tasks, wherein the step of generating a channel is performed in response to receiving the one or more tasks (Column 13, Claim 13, lines 7-13).

16. With respect to claim 82, neither Isfeld nor Hagsand discloses determining a topology of processing nodes to process one or more tasks, the topology including the channel.

However, Deri discloses determining a topology of processing nodes to process one or more tasks, the topology including the channel (Column 12, Claim 5).

17. With respect to claim 83, Isfeld discloses receiving a response signal from the destination processing node by the source processing node (Column 9, lines 49-59).

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18. With respect to claim 84, neither Isfeld nor Hagsand discloses assigning tasks to one or more nodes in the array of nodes, wherein said step of generating a channel is performed in response to said step of assigning tasks

However, Deri discloses assigning tasks to one or more nodes in the array of nodes, wherein said step of generating a channel is performed in response to said step of assigning tasks (Column 2, lines 67-68 and continued through to Column 3, lines 1-11).

19. With respect to claim 85, neither Isfeld nor Hagsand discloses wherein the channel is further generated based on a physical description of the multi-processor system.

However, Deri discloses wherein the channel is further generated based on a physical description of the multi-processor system (Column 2, lines 67-68 and continued through to Column 3, lines 1-30).

20. With respect to claim 86, neither Isfeld nor Hagsand discloses wherein the source processing element is configured to determine routing information for one or more channels and assign task to one or more destination processing nodes.

However, Deri discloses wherein the source processing element is configured to determine routing information for one or more channels and assign task to one or more destination processing nodes (Column 2, lines 67-68 and continued through to Column 3, lines 1-30).

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21. With respect to claim 87, neither Isfeld nor Hagsand discloses wherein the transmit buffer and receive buffer are allocated based on the task and a physical description of a portion of the array of nodes over which the data is to be transmitted.

However, Deri discloses wherein the transmit buffer and receive buffer are allocated based on the task and a physical description of a portion of the array of nodes over which the data is to be transmitted (Column 2, lines 67-68 and continued through to Column 3, lines 1-30).

**22. Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld, in view of Hagsand, in view of Deri and further in view of Plante (Pub. No US 2004/0208602 A1).**

23. With respect to claims 7 and 20, Isfeld does not disclose guaranteeing bandwidth based on the bandwidth requirements using spatial division multiplexing. However, Plante discloses guaranteeing bandwidth based on the bandwidth requirements using spatial division multiplexing (Page 18; [0210], lines 1-8). It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings of Isfeld with the teachings of Plante in order to transmit independent and separately encoded data signals using the current channel and specified bandwidth requirement put in place.

**24. Claims 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isfeld, in view of Hagsand, in view of Deri and further in view of Pitts (Patent No US 6,505,241 B2).**

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With respect to claims 11 and 24, Isfeld does not disclose destroying the channel. However, Pitts discloses destroying the channel (Column 30, line 32).

***Response to Arguments***

25. Applicant's arguments filed 18 August 2008 have been fully considered but they are not persuasive.

26. With respect to applicant's argument at the top of page 17 of the instant arguments, in regards to the rejection of claim 1. Applicant's contends that Isfeld does not disclose the embodiment of claim 1. The examiner respectfully disagrees and refers applicant to the rejection of claim 1 above which addresses applicant's amended claim.

27. With respect to applicant's argument in the middle of page 17 of the instant arguments, in regards to the rejection of claim 1. Applicant's contends that Hagsand does not cure the deficiencies of Isfeld nor disclose "generating a channel that has a bandwidth requirement", which is a limitation of claim 1. The examiner respectfully disagrees and refers applicant to the rejection of claim 1 above which addresses applicant's amended claim, in conjunction with the disclosure of Hagsand Column 2, lines 63-67, which discloses generating a channel that has a bandwidth requirements.

28. With respect to applicant's argument at the bottom of page 17 of the instant arguments, in regards to the rejection of claim 1. Applicant's contends that Hagsand does disclose wherein

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the channel is "unidirectional". The examiner respectfully disagrees and refers applicant to the rejection of claim 1 above which addresses applicant's amended claim, in conjunction with the disclosure of Hagsand Column 2, lines 63-67. Further, applicant's contend that Hagsand does not disclose the limitation of claim 1 "contained within the array of processor nodes". The examiner respectfully disagrees and refers applicant to the rejection of claim 1 above which addresses applicant's amended claim, in conjunction with the disclosure of Deri Column 2, lines 67-68 and continued through to Column 3, lines 1-11.

29. With respect to applicant's argument at the top of page 18 of the instant arguments, in regards to the rejection of claim 1. Applicant's contends that Isfeld does not disclose generating a channel "based on a physical description of the array of processing nodes" as recited in claim 1. The examiner respectfully disagrees and refers applicant to the rejection of claim 1 above which addresses applicant's amended claim.

30. With respect to applicant's argument at the bottom of page 18 of the instant arguments, in regards to the rejection of claim 1. Applicant's contends that one skilled in the art would not find it obvious to try to combine Isfeld, Hagsand and Deri because their communication protocols are not compatible. The examiner respectfully disagrees, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24

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USPQ2d 1443 (Fed. Cir. 1992). In this case, Isfeld, Hagsand and Deri are all concerned with communication of messages/data between nodes.

31. With respect to applicant's argument at the top of page 19 of the instant arguments, in regards to the rejections of claims 2-6, 8-10 and 13, which depend from claim 1. Applicant's contends that because Isfeld, Hagsand, and Deri do not disclose or make obvious the elements of claim 1, both in combination and considered individually, claim I should be allowed and as such claims 2-6, 8-10 and 13. The examiner respectfully disagrees and refers applicant's to the rejection of claims 1-6, 8-10 and 13 above in conjunction with the response to applicant's argument above.

32. With respect to applicant's argument in the middle of page 19 of the instant arguments, in regards to the rejection of claim 14. Applicant's contends that Isfeld, Hagsand, and Deri do not disclose the claimed embodiment. The examiner respectfully disagrees and refers applicant to the rejection of claim 14 above which addresses applicant's amended claim.

33. With respect to applicant's argument at the bottom of page 19 of the instant arguments, in regards to the rejection of claims 7 and 20. Applicant's contends that the prior art does not teach nor cure the deficiencies of applicant's amended claims. The examiner respectfully disagrees and refers applicant to the rejection of claims 7 and 20 above which addresses applicant's amended claims.

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34. With respect to applicant's argument at the top of page 20 of the instant arguments, in regards to the rejection of claims 11 and 24. Applicant's contends that the prior art does not teach nor cure the deficiencies of applicant's amended claims. The examiner respectfully disagrees and refers applicant to the rejection of claims 11 and 24 above which addresses applicant's amended claims.

### ***Conclusion***

35. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARSHALL MCLEOD whose telephone number is (571)270-3808. The examiner can normally be reached on Monday - Thursday 6:30 a.m-4:00 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marshall McLeod

Art Unit 2457

/ARIO ETIENNE/

Supervisory Patent Examiner, Art Unit 2457